



Operational Needs

Overview of the main operational requirements influencing the project



Project Framework

Snapshot of the project's structure and collaborations



System Overview & Demonstration

Overview of the main operational requirements influencing the project.

Key Features

Technical Aspects

Final demonstration



OPERATIONAL NEEDS



Go back to summary

1 Operational vision

2 Use Cases & Scenarios

3 Threat Integration Cycle

4 Benefits of Data Sharing

5 Vision Mapping

6 Data Governance

OPERATIONAL VISION



Click here to **discover the threats**



OPERATIONAL NEEDS



Go back to summary

1 Operational vision

2 Use Cases & Scenarios

3 Threat Integration Cycle

4 Benefits of Data Sharing

5 Vision Mapping

6 Data Governance

OPERATIONAL VISION





Go back to summary

USE CASES & SCENARIOS



Next Use Case

1

Operational vision

2

Use Cases & Scenarios

3

Threat Integration Cycle

4

Benefits of Data Sharing

5

Vision Mapping

6

Data Governance



UC1 - Battle tanks & Infantry Fighting Vehicle threats:

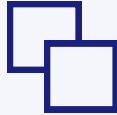
Ground-to-Ground (vehicle perspective) and Air-to-Ground (drone perspective), based on real operational data.



MS1

Target Vehicle Tracking

- Detect, identify and track target vehicle
- Threat assessment and re-acquisition
- Real-time data sharing to operator & C2.



MS2

Change Detection

- Compare successive observations of same area
- Automatically detect environmental changes.



MS6

Observe, Detect & Track

S1

Convoy following and threat detection (MBTs, IFVs, drones).

S2

Low-altitude target detection (drone to 2–10 m) and trajectory prediction

S3

Long-range multi-target tracking (up to 3 km).

S4

Detection of concealed armored vehicles in forest environments



MS7

Terrain Analysis

S1

Threat and track detection on complex terrain (snow, mud)

S2

Route assessment, path optimization, and ambush detection



UC2 - Drones & Drone Swarm Threats:

Ground to Air point of view (from vehicle) based on real data.



MS3

Detection & Protection of a Friendly Vehicle

A Blue MBT and reconnaissance drone protect friendly IFVs/troop carriers against a swarm of enemy fixed-wing drones. Detect, identify, classify UAVs, assess threat and engage the most dangerous one.



MS6

Short-Range Threat Detection

S1

360° drone detection, classification & counting (incl. low visibility conditions)

S2

Detection of troops in cluttered environments (occlusions)

S3

Urban scenario – rapid short-range threat detection & classification for fast engagement



MS5

Collaborative Situation Update & Monitoring

S1

Real-time threat detection, route adaptation & information sharing

S2

Continuous improvement of detection & friend/foe classification over time

S3

Multi-platform fusion of situational awareness under strong occlusions



Go back to summary

1 Operational vision

2 Use Cases & Scenarios

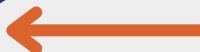
3 Threat Integration Cycle

4 Benefits of Data Sharing

5 Vision Mapping

6 Data Governance

USE CASES & SCENARIOS

 Previous Use Cases



UC3 - Hypersonic threats:

Ground to Air point of view from a vehicle and based on simulated data



MS8 Surveillance and early warning

AWACS / satellite provides a detection of Red missiles. Blue force surveillance station upon this information must be able to track and to estimate the trajectory of the red missiles, in order to predict both the impact area and the impact time.

The surveillance station must be able to provide this data to the fire station to optimize the interception of the Red missiles, and more particularly estimate the best trajectory for the interception of the threats.



MS9 Target acquisition & trajectory estimation

Blue optronics station must automatically acquire targets and estimate their trajectories. This information is provided to fire control systems and interceptors.



Go back to summary

1 Operational vision

2 Use Cases & Scenarios

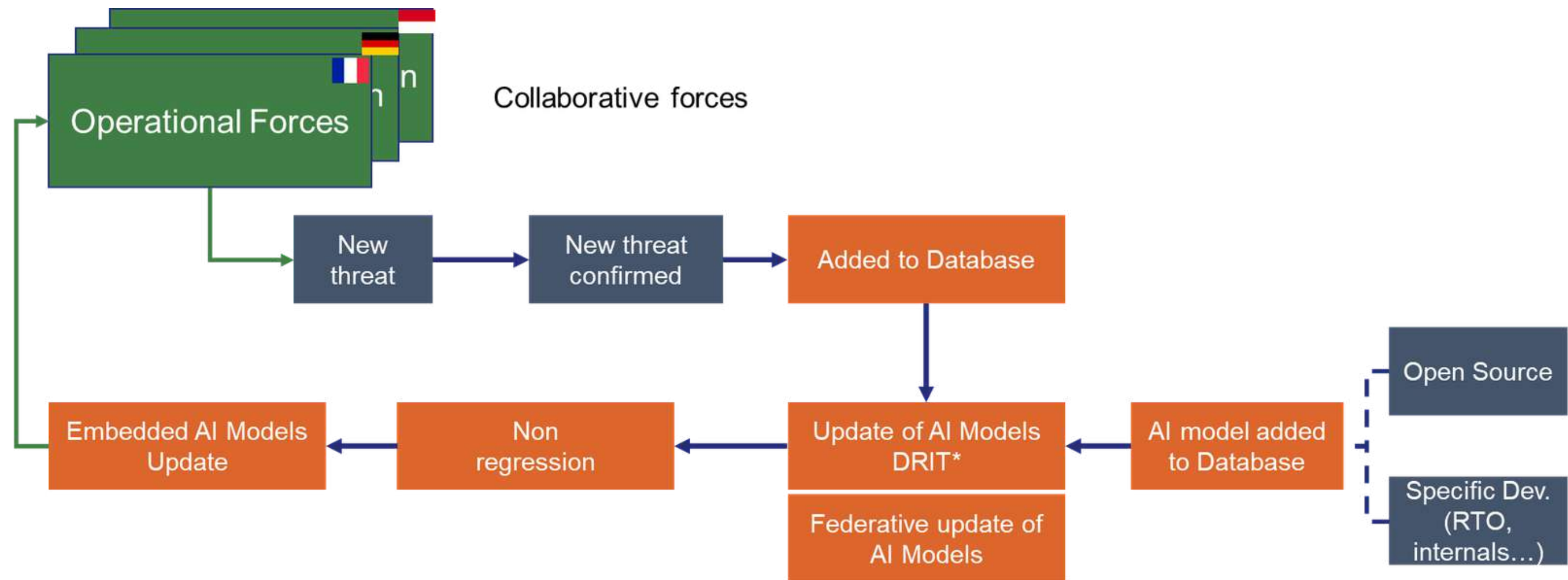
3 Threat Integration Cycle

4 Benefits of Data Sharing

5 Vision Mapping

6 Data Governance

THREAT INTEGRATION CYCLE



* DRIT : Detection, Recognition, Identification, Tracking



Go back to summary

1 Operational vision

2 Use Cases & Scenarios

3 Threat Integration Cycle

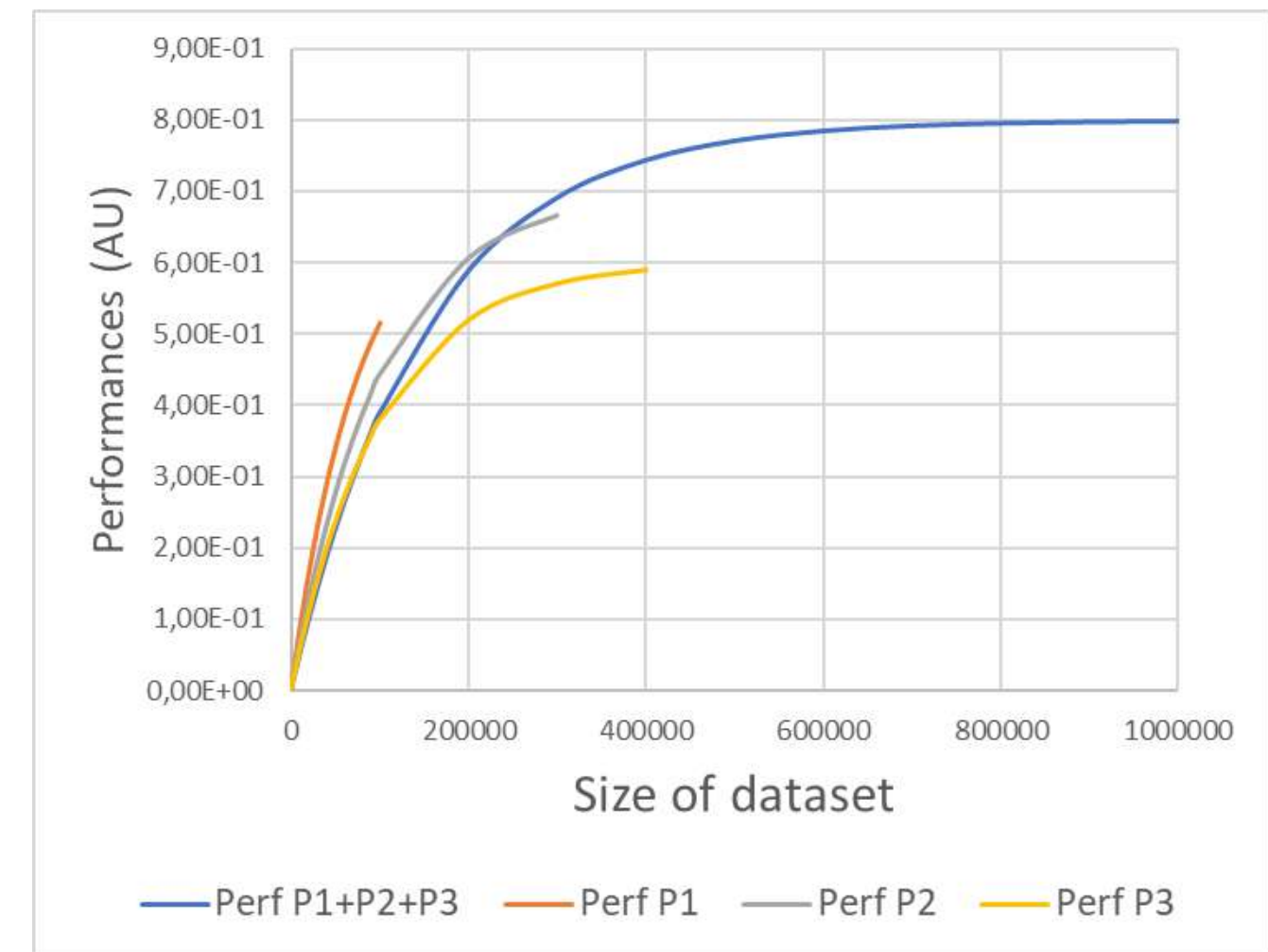
4 Benefits of Data Sharing

5 Vision Mapping

6 Data Governance

BENEFITS OF DATA SHARING

- Increase the quantity of data to:
 1. train AI models
 2. benchmark models
 3. certify AI based image recognition systems
- Increase the diversity to get higher performances
- Speed up necessary time to collect the data / Reduce costs
- Force to harmonize formats of data → Ensure interoperability
- Provide data to RTO, research labs, to improve, develop new concepts in the domain of AI dedicated to optronics systems





Go back to summary

- 1 Operational vision
- 2 Use Cases & Scenarios
- 3 Threat Integration Cycle
- 4 Benefits of Data Sharing
- 5 Vision Mapping**
- 6 Data Governance

VISION MAPPING

WHY STORE :

Faced with the emergence of new threats and their constant evolution (hypersonic missiles, combat drones, swarms of drones, ...), Forces have an increasing need for AI-based image recognition systems to fasten decision-making, enhance situation awareness, responsiveness, and survivability. The complexity of the development of such systems is linked to the lack of representative defence images, associated tools and infrastructure to share them properly between the countries.

HOW :

STORE brings together European partners to collect, harmonize and share defence imagery through a common governance framework. By increasing both the quantity and diversity of data, the project enables the development, benchmarking and validation of AI algorithms for three key use cases: Battle Tanks & Infantry Vehicles, Drones & Drone Swarms, and Hypersonic Threats, while supporting future capabilities such as ATD/R, tracking, semantic understanding and MUM-T operations.

WHAT IS STORE :

STORE (Shared daTabase for Optronic Image Recognition and Evaluation) is building Europe's first shared and scalable defence imagery database to support the development, training, testing and evaluation of AI-based threat detection and recognition systems.



Go back to summary

1 Operational vision

2 Use Cases & Scenarios

3 Threat Integration Cycle

4 Benefits of Data Sharing

5 Vision Mapping

6 Data Governance

DATA GOVERNANCE

1. Sovereignty and Asset Management

- Asset Co-ownership: Centralized management of AI models and datasets in accordance with the EDF Grant Agreement (Art. 8.2.2).
- Classification Integrity: Strict enforcement of "EU Restricted" / "Confidentiel Défense" levels, requiring unanimous consent for any classification downgrading, hosted exclusively on certified sovereign infrastructure.

2. Access Control and Technical Security

- ABAC & Tiered Architecture: Granular access control based on user clearance, bolstered by digital watermarking and audit logs compliant with the NIS2 Directive.
- Third-Party Compliance: Systematic requirement for security certifications (ISO 27001), Data Protection Impact Assessments (DPIA), and validated export licenses for all new entities.

3. Exit Policy and Strategic Oversight

- Exit Obligations: Mandatory certified data destruction (ISO 18095) and formal transfer of intellectual property rights upon project departure.
- Governance: Centralized oversight by the Consortium Board to conduct annual compliance audits and execute immediate access revocation in the event of non-compliance.



Go back to summary

1 About STORE

2 Consortium

ABOUT STORE

Faced with the emergence of new threats and their constant evolution (hypersonic missiles, combat drones, swarms of drones, ...), optronic sensors have never been of such importance for combat forces, requiring an exceptional level of performance.

This is the whole challenge of the STORE collaborative project initiated by the EDF: build a sustainable, shared, scalable database addressing the evolution of threats in diverse terrestrial environments and develop high-performance AI-based image recognition capabilities.

Thanks to optronics associated with artificial intelligence analysis techniques, the combatant will benefit from advantageous and valuable assistance for the perception of his environment. These intelligent and secure optronic solutions will contribute to: improving awareness of the tactical situation, shortening decision-making processes, accelerating combatants' reactivity and, ultimately, their survivability.



21
Partners



8 EU Countries +
Norway



36
Months



01/12/2023
Starting date



23M
euros



THALES LAS
Coordinator

PROJECT FRAMEWORK



Go back to summary

1 About STORE

2 Consortium

CONSORTIUM EDF-STORE



EDF Project :

- The STORE project is part of the European Defence Fund, an initiative by the European Union aimed at strengthening cooperation on defence between member states.
- It supports the creation of a shared, secure and scalable European defense imagery database to address diverse threats such as vehicles, drone swarms, and hypersonic threats.
- The budget is €23 million for a total duration of 36 months, with an end date scheduled for November 2026.

STORE is a unique collaboration of 21 partners from 8 EU Member States and Norway, representing companies, research institutes and universities.



Go back to summary

SYSTEM OVERVIEW



Key Features

STORE develops AI-based image recognition for threat assessment and a shared European annotated defence-image database from optronic systems. It focuses on key critical features.



Technical Aspects

Technical Aspects cover Data, the DBF, AISF, AI Models, and Benchmarking to support AI-based threat-assessment image recognition.



Final demonstration

STORE is organizing the final demonstration on October 14, 2026, to demonstrate the technical achievements of the project, which was the result of joint efforts by the partners.

SYSTEM OVERVIEW - KEY FEATURES



Go back to system overview

1 Shared European Database

2 Leading edge AI factory dedicated to image recognition for detection

3 Future technologies for decentralized learning techniques exploiting shared database

4 Evaluation of AI recognition systems integrated on demonstrators

SHARED EUROPEAN DATABASE

STORE will develop a new type of distributed database architecture based on a set of local database nodes with dedicated synchronization and coordination services, secured by most advanced technologies.

The resulting architecture will enable shared governance among member states by enabling application of exchange restriction rules founded on policy and releasability. Besides, the architecture will allow for strongly decoupling data acquisition, cleaning and consolidation processes from database exploitation for scientific or engineering purposes.



Shared European Database

SYSTEM OVERVIEW - KEY FEATURES



Go back to system overview

1 Shared European Database

2 Leading edge AI factory dedicated to image recognition for detection

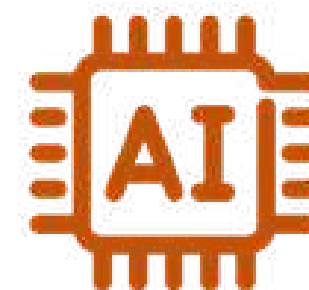
3 Future technologies for decentralized learning techniques exploiting shared database

4 Evaluation of AI recognition systems integrated on demonstrators

LEADING EDGE AI FACTORY

STORE will enable to extend the operational use of image recognition systems by making the systems more robust to the variety of observation conditions and by addressing new forms of threats such as small drones and drone swarms, loitering munitions and hypersonic threats.

Additionally, STORE potential to mature AI methods will allow an effective way to assess potential novel threats arising with the support of AI based systems.



Leading edge AI factory dedicated to image recognition for detection

SYSTEM OVERVIEW - KEY FEATURES



Go back to system overview

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FUTURE TECHNOLOGIES

STORE will address newest technologies for the sharing of data and models across borders, companies and institutions from the defence domain in a controlled and trustworthy manner while maintaining privacy and security.

A software architecture framework will mature decentralized learning techniques to decouple model training from a central database and therefore allowing to train AI models without exposing critical data.



Future technologies for decentralized learning techniques exploiting shared database

SYSTEM OVERVIEW - KEY FEATURES



Go back to system overview

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EVALUATION OF AI RECOGNITION SYSTEM

STORE will ensure an objective evaluation of performances of AI recognition methods through a common annotation platform of acquired images, the use of shared metrics and benchmark tools in order to measure the performance of partners algorithms on the addressed use cases. The benchmark will be independent, as conducted by a dedicated team.

The evaluation will be carried out on integrated demonstrators comprised of optronics sensors used for data collection. AI technologies selected through the benchmark activities will be integrated in customized hardware near sensors and will be tested during field demonstrations implementing the STORE use cases at the end of the project.



**Evaluation of AI recognition systems
integrated on demonstrators**

SYSTEM OVERVIEW-TECHNICAL ASPECTS



Go back to system overview

1 Data

2 DataBase Framework (DBF)

3 AI Software Factory (AISF)

4 AI Models

5 Benchmark

DATA

Our performance relies on a rigorous, multi-source data strategy to ensure real-world reliability:

Qualified Public Datasets (9M+ images): We aggregate over 9 million images across 13 classes, including vehicles, drones, and personnel. Each dataset is strictly filtered for ethics, quality, and redundancy.

Synthetic & Simulation Data: To bolster edge-case performance, we integrate 10,000 hybrid ground-scenario images and 750 multi-spectral (Visible, MWIR, LWIR) hypersonic simulation frames.

Field Acquisition Campaigns: During two campaigns (France 2024; Norway 2025), we captured 5M images across diverse settings, including open fields (forest, lake, mountain) and urban simulacra. The data features 8 armored vehicles, 3 drone types, swarms, and pedestrians under all weather conditions (snow, rain, sun), with 2M images precisely annotated via bounding boxes for algorithm development.



SYSTEM OVERVIEW-TECHNICAL ASPECTS



Go back to system overview

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2 DataBase Framework (DBF)

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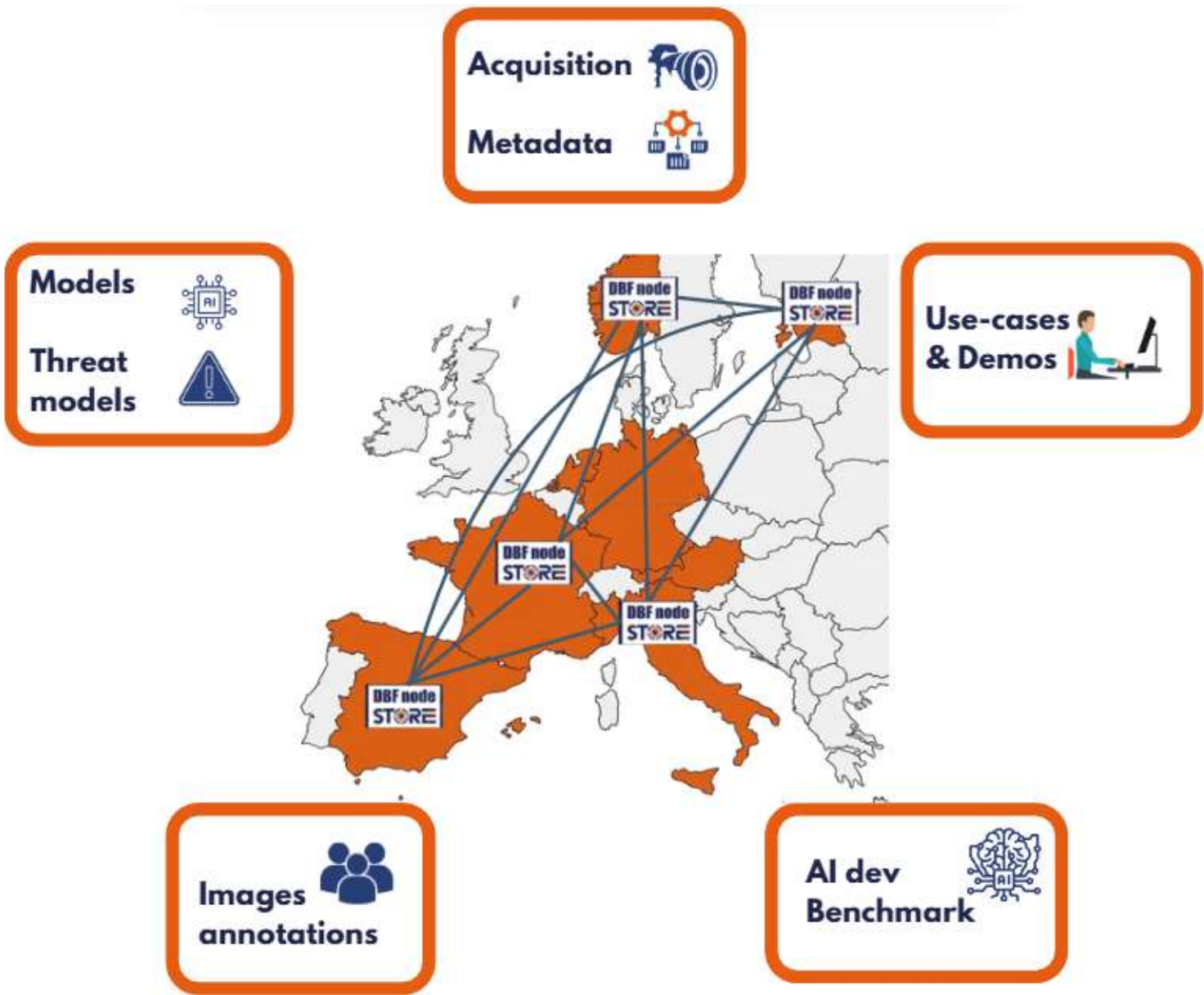
5 Benchmark

DATABASE FRAMEWORK (DBF)

The STORE Database Framework (DBF) provides a distributed and federated infrastructure for managing defence imagery datasets and AI modules used for training and benchmarking.

The framework connects six operational nodes across Europe through a common metadata model, enabling secure data discovery, sharing and interoperability while preserving local data ownership.

By combining local autonomy with a single logical database, STORE supports scalable AI workflows, collaborative development and efficient data exchange, eliminating single points of failure and strengthening the European sovereign AI ecosystem for defence applications.



Member State or partner hosting a local DBF node, enabling secure data sharing.

SYSTEM OVERVIEW-TECHNICAL ASPECTS



AI SOFTWARE FACTORY (AISF)



Go back to system overview

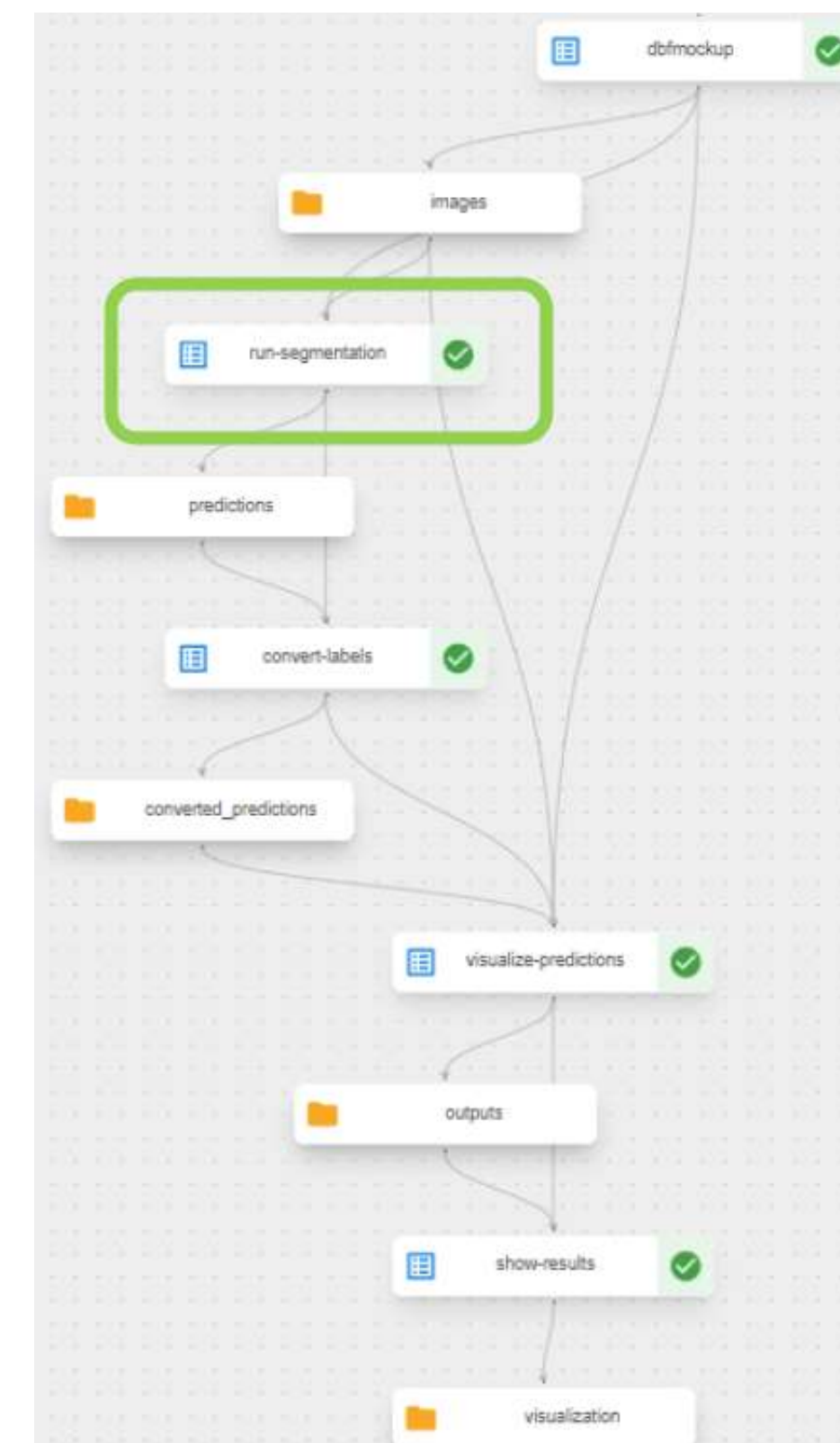
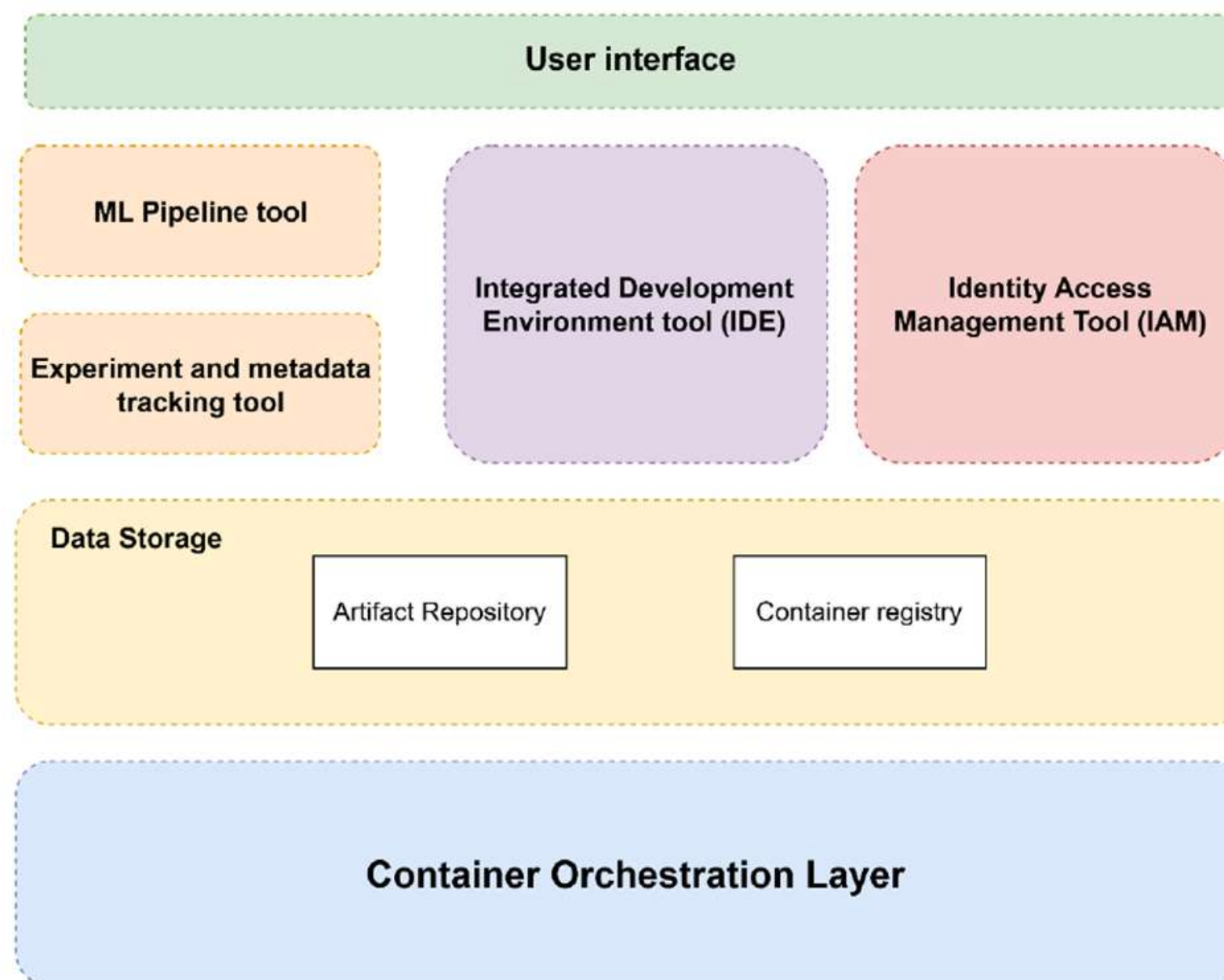
1 Data

2 DataBase
Framework (DBF)

3 AI Software Factory
(AISF)

4 AI Models

5 Benchmark



SYSTEM OVERVIEW-TECHNICAL ASPECTS



Go back to system overview

AI MODELS

1 Data

2 DataBase
Framework (DBF)

3 AI Software Factory
(AISF)

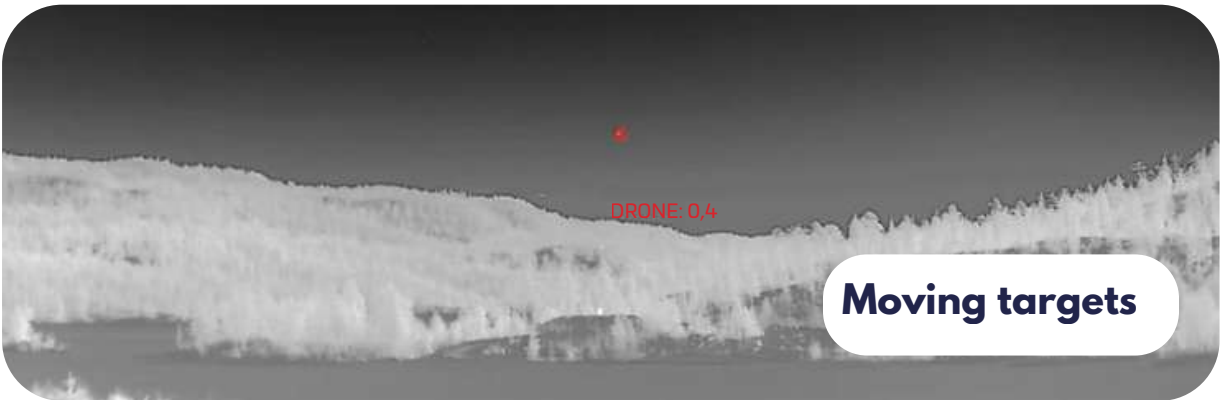
4 AI Models

5 Benchmark

We leverage a robust suite of over 30 AI models to ensure comprehensive battlefield intelligence, including:

Core Technical Capabilities:

- ATDR: Automatic Target Detection and Recognition ;
- Moving Target Detection: Real-time tracking of threats ;
- Semantic Segmentation: Deep contextual understanding of landscapes and environments ;
- Anomaly & Change Detection: Identifying hidden or sudden battlefield changes.



SYSTEM OVERVIEW-TECHNICAL ASPECTS



Go back to system overview

BENCHMARK

1 Data

2 DataBase
Framework (DBF)

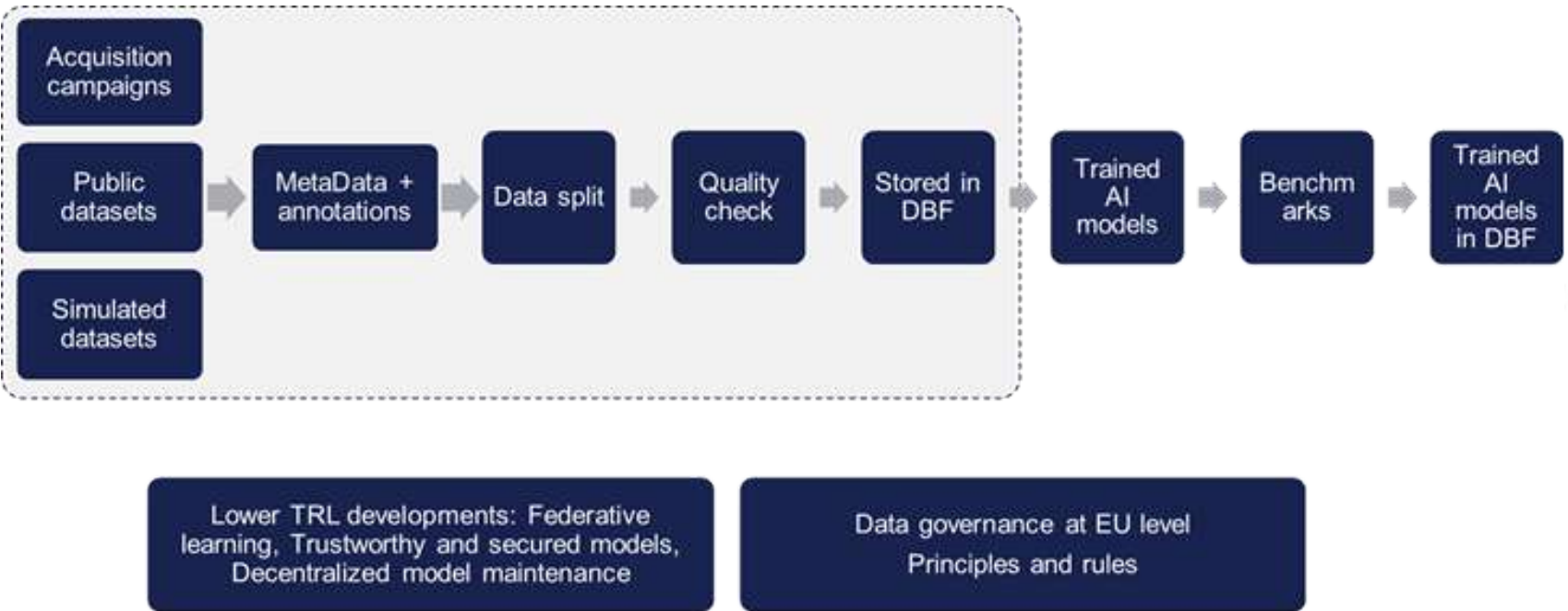
3 AI Software Factory
(AISF)

4 AI Models

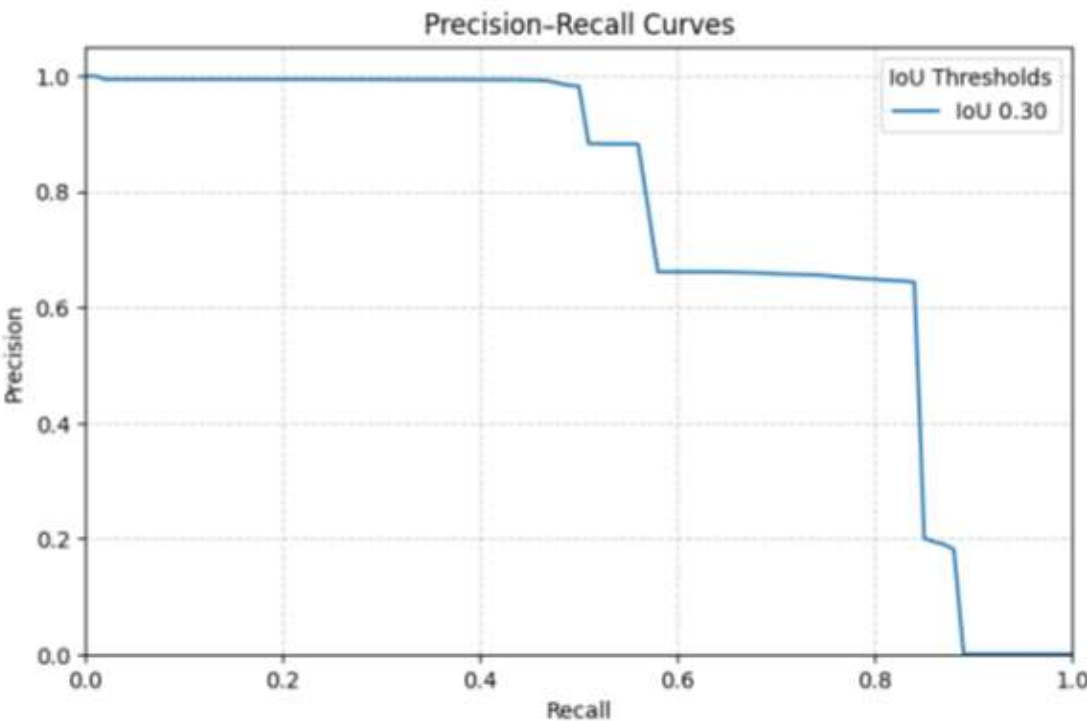
5 Benchmark

Project Vision & Strategic Framework:

- Ambition: Develop and benchmark high-performance AI image recognition, trained on a sustainable, scalable shared database that addresses evolving threats and the diversity of land environments.
- Operational Status: The main interconnected workflow is currently active and fully operational.
- Development Strategy: Well-balanced efforts maintained between data management and AI model activities.



Data workflow from acquisition to split (training and benchmark). Quality check includes labelling error detection and image quality. Additional metadata is also provided.



Example of detection based on an ATDR model, superposing detection and ground truth bounding boxes. Benchmark metrics for 3 models. ROC curve example.

FINAL DEMONSTRATION



Go back to system overview

INVITATION

1 Invitation

2 Planning

EUROPEAN UNION

THALES

SAFRAN

ONERA

gmv

LEONARDO

FLYSIGHT

HENSOLDT

STRATIS

UNIVERSITY OF COLOGNE

AIT

UNIMORE

MARDUK

Fraunhofer IOSE

RHEINMETALL

FALCONERS

TNO

KONGSBERG

CYBERNETICA

LIST

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STORE FINAL DEMONSTRATIONS

OCTOBER 14th 2026 - SAUMUR, FRANCE

Discover STORE's achievements through seven interactive stands and on-field demonstrations

LAB-DEMONSTRATIONS

October 14th 2026

09:00 - 12:00

Open to all stakeholders and guests

ON FIELD DEMONSTRATIONS

October 14th 2026

14:00 - 17:00

Open to all stakeholders and guests

INVITATION



Go back to system overview

1 Invitation

2 Planning

OPERATIONAL VISION

We are proud to announce the final STORE project demonstration on October 13–14, 2026, in Saumur, France, showcasing our developed features and results.

Presentations will occur through two main channels:

- Lab Demonstration: Discover STORE’s achievements through ten interactive stands: data acquisition campaigns, simulated data, data quality assessment, the shared database framework, advanced AI models for threats detection and recognition, the AI software factory and the advanced benchmark suite.
- On-field Demonstration: Real-time demonstration of the AI-based optronic systems developed within STORE, featuring real military vehicles and drones.

First day Monday, October 12, 2026		Second day Tuesday, October 13, 2026		Third day Wednesday, October 14, 2026	
Morning	Afternoon	Morning	Afternoon	Morning	Afternoon
Where: Domaine de Roiffé					
Arrival at Domaine de Roiffé	Auditorium Check-up	Closing Meeting STORE project summary: review of the project, achievements AUDITORIUM Domaine de Roiffé	Closing Meeting STORE project summary: review of the project, achievements AUDITORIUM Domaine de Roiffé	LAB Demonstrations 10 STANDs ROOM 2 Domaine de Roiffé	Remote transmission of the on field demonstration AUDITORIUM Domaine de Roiffé
Where: Camp de Fontevraud					
Arrival at the Fontevraud camp		Testing of the integrated demonstrators into the camp	Arrival of the tanks at the camp & testing of the integrated demonstrators With configuration according to the demo scenarios	PPreparation and installation before demonstration	On Field Demonstration
Accessible only to project partners		Accessible only to project partners	Accessible only to project partners	Open to Guests	Open to Guests

INFORMATION ABOUT STORE NEWSLETTER

This newsletter is intended to present the STORE project and provide general information regarding its scope, objectives, and progress. It is shared for informational purposes only and aims to give readers an overview of the project and its key developments ahead of the final demonstration scheduled for October 14, 2026.

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<https://edf-store.com>

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Go back to summary